AMENDMENT

In the Claims:

Please cancel claims 86-89 as directed to a non-elected invention.

Please amend claims 3, 30-32, 39, 40, 43, 44 and 67 as follows:

3. (Amended) The method of claim 2, wherein the substrate is selected from the group consisting of a microsphere, a chip, a slide, a multiwell plate, a membrane, an optical fiber, and a porous gel matrix.

30. (Amended) The method of claim 6, wherein the sample is suspected of containing a second amplification product from a second target polynucleotide and is further contacted under a second set of hybridization conditions with a second capture probe conjugated to a microsphere,

wherein the second capture probe is a polynucleotide,

wherein the microsphere can be the first microsphere or a different second microsphere,

wherein when the microsphere is a different second microsphere it comprises a second spectral code comprising second fluorescence characteristics, said second spectral code distinguishable from the first spectral code,

wherein the second set of hybridization conditions can be the same as or different than the first set of hybridization conditions,

wherein the second capture probe can hybridize to the second amplification product under the second set of hybridization conditions,

wherein the second amplification product comprises a second label, which can be the first label when the microsphere is a different second microsphere or can be a different second label, and

determining if the second label is associated with the microsphere.

31. (Amended) The method of claim 30, wherein the sample is suspected of containing a third amplification product from a third target polynucleotide and is further contacted under a third set of hybridization conditions with a third capture probe conjugated to a microsphere,

wherein the third capture probe is a polynucleotide,

wherein the microsphere can be the first microsphere, the second microsphere or a different third microsphere,

wherein when the microsphere is a different third microsphere it comprises a third spectral code comprising third fluorescence characteristics, said third spectral code distinguishable from the first spectral code and the second spectral code,

wherein the third set of hybridization conditions can be the first set of hybridization conditions, the second set of hybridization conditions, or a different third set of hybridization conditions,

wherein the third capture probe can hybridize to the third amplification product under the third set of hybridization conditions,

wherein the third amplification product comprises a third label, which can be the first label or the second label when the microsphere is a different third microsphere or can be a different third label, and

determining if the third label is associated with the microsphere.

32. (Amended) The method of claim 31, wherein the sample is suspected of containing a fourth amplification product from a fourth target polynucleotide and is further contacted under a fourth set of hybridization conditions with a fourth capture probe conjugated to a microsphere,

wherein the fourth capture probe is a polynucleotide,

wherein the microsphere can be the first microsphere, the second microsphere, the third microsphere or a different fourth microsphere,

wherein when the microsphere is a different fourth microsphere it comprises a fourth spectral code comprising fourth fluorescence characteristics, said fourth spectral

code distinguishable from the first spectral code, the second spectral code and the third spectral code,

wherein the fourth set of hybridization conditions can be the first set of hybridization conditions, the second set of hybridization conditions, the third set of hybridization conditions or a different fourth set of hybridization conditions,

wherein the fourth capture probe can hybridize to the fourth amplification product under the fourth set of hybridization conditions,

wherein the fourth amplification product comprises a fourth label, which can be the first label, the second label or the third label when the microsphere is a different fourth microsphere or can be a different fourth label, and

determining if the fourth label is associated with the microsphere.

39. (Amended) The method of claim 38, wherein the substrate is further conjugated to a third capture probe, wherein the third capture probe can preferentially bind to a third capture sequence on a third amplification product, said third amplification product comprising a third label that can be the same as or different than the first label and/or the second label, wherein the binding of the third amplification product to the third capture probe can be independently determined.

40. (Amended) The method of claim 39, wherein the substrate is further conjugated to a fourth capture probe, wherein the fourth capture probe can preferentially bind to a fourth capture sequence on a fourth amplification product, said fourth amplification product comprising a fourth label that can be the same as or different than the first label and/or the second label and/or the third label, wherein the binding the fourth amplification product to the fourth capture probe can be independently determined.

43. (Amended) A method of forming an amplification product detection complex for assaying a sample for a first target polynucleotide, comprising:

providing a first primer and a second primer;

said first primer comprising a 3' end of one to five nucleotides, a first target complementary region that is complementary to the first target polynucleotide, said first target complementary region located at the 3' end of the first primer, and a first target noncomplementary region that is not complementary to the first target polynucleotide at a position 3' of a sequence to which the first target complementary region can hybridize;

said second primer comprising a 3' end and a first label;

providing the sample, said sample suspected of containing the first target polynucleotide;

contacting the sample with the first primer under conditions in which the first target complementary region can hybridize to the first target polynucleotide and the first primer can be extended to form a first primer extension product;

altering the sample conditions to allow dissociation of the first primer extension product from the first target polynucleotide;

wherein the 3' end of the second primer is complementary to the first primer extension product at a position in the first primer extension product that is 3' to the first target complementary region;

contacting the sample with the second primer under conditions in which the second primer can hybridize to the first primer extension product and be extended to form a second primer extension product comprising a first capture sequence that is the complement of the first target noncomplementary region and does not exist elsewhere in the second primer extension product, wherein the second primer extension product is the amplification product;

altering the sample conditions to allow dissociation of the second primer extension product from the first primer extension product; and

contacting the sample with a first capture probe conjugated to a first substrate, wherein the contacting takes place under conditions in which the first capture probe can bind to the first capture sequence of the second primer extension product to form an amplification product detection complex.

44. (Amended) A method according to claim 43, further comprising determining if the first label is associated with the first substrate.

67. The method of claim 66, wherein the flanking primer has a lower melting point for hybridization to the first target polynucleotide than the first primer.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached pages are captioned **"Version with markings to show changes made."**